

# Claims

- [c1] A method of controlling an automotive vehicle comprising:
- detecting a potential for a wheel lift;
  - determining a wheel lift pressure request to determine wheel lift;
  - generating a roll control pressure request; and
  - suppressing the wheel lift pressure request in response to the roll control pressure request.
- [c2] A method as recited in claim 1 wherein determining a wheel lift pressure request comprises determining a wheel lift pressure request to determine wheel lift for a first wheel on a hydraulic circuit.
- [c3] A method as recited in claim 2 wherein generating a roll control pressure request comprises generating a roll control pressure request to a second wheel of the hydraulic circuit and monitoring the difference between the roll control pressure request and the caliper pressure estimate for a control wheel so that the hydraulic circuit fulfills the roll control pressure request.
- [c4] A method as recited in claim 1 wherein the step of sup-

pressing comprises suppressing the wheel lift pressure when the roll control caliper pressure request is above an estimate of the control caliper pressure by a predetermined threshold.

[c5] A method as recited in claim 1 further comprising when the roll control pressure request is below a second threshold, discontinuing suppressing.

[c6] A method as recited in claim 1 further comprising discontinue suppressing during a stable roll motion.

[c7] A method as recited in claim 1 further comprising discontinue suppressing when the vehicle is grounded.

[c8] A method of controlling a vehicle having a hydraulic circuit coupled to a first wheel and a second wheel comprising:  
initiating build request in response to a suspected wheel lift for the first wheel of the hydraulic circuit;  
generating a roll control pressure request for a second wheel of the hydraulic circuit; and  
entering a release cycle for the wheel lift pressure request when the roll control pressure request is above a predetermined threshold.

[c9] A method as recited in claim 8 further comprising when the roll control pressure request is below a second

threshold, discontinuing the release cycle.

[c10] A method as recited in claim 9 further comprising initiating a build cycle after discontinuing the release cycle.

[c11] A method of operating an automotive vehicle comprising:  
initiating a build cycle;  
storing a peak wheel speed after initiating the build cycle;  
determining a second wheel speed to determine a change in wheel speed from the peak speed; and  
determining a wheel lift status when the change in the wheel speed is greater than a predetermined value.

[c12] A method as recited in claim 11 further comprising determining a slip ratio in response to an applied pressure or torque.

[c13] A method as recited in claim 12 further comprising ending a build cycle in response to said slip ratio being negative.

[c14] A method as recited in claim 11 wherein determining a wheel lift status comprises determining a first or second wheel lift status.

[c15] A method of operating an automotive vehicle comprising

ing:

initiating a build cycle;

storing a peak wheel speed after initiating the build cycle;

determining a second wheel speed to determine a change in wheel speed from the peak speed; and

choosing between a first or second lift status in response to the change in wheel speed.

[c16] A method as recited in claim 15 wherein the first wheel lift status comprises grounded and the second wheel lift status comprises lifted.

[c17] A method as recited in claim 15 wherein the first wheel lift status comprises absolutely grounded and the second wheel lift status comprises absolutely lifted.

[c18] A method as recited in claim 15 wherein choosing comprises choosing between a first, second third or fourth status in response to the change in wheel speed.

[c19] A method as recited in claim 15 wherein the first wheel lift status comprises absolutely grounded, the second wheel lift status comprises absolutely lifted, the third wheel lift status comprises possibly grounded and possibly lifted.

[c20] A method as recited in claim 15 further comprising de-

termining wheel slip, wherein choosing comprises choosing between a first or second wheel lift status in response to the change in wheel speed and wheel slip.

- [c21] A method as recited in claim 15 wherein wheel slip comprises wheel slip ratio.
- [c22] A method as recited in claim 15 wherein the predetermined threshold comprises a reacceleration reference velocity.
- [c23] A method as recited in claim 15 further comprising when the wheel speed is decelerating, setting the reacceleration reference velocity to the wheel speed.
- [c24] A method as recited in claim 15 further comprising when the wheel speed is accelerating increasing the reacceleration reference velocity.
- [c25] A method as recited in claim 15 wherein increasing the reference velocity comprises increasing the reference velocity at a predetermined rate.
- [c26] A method as recited in claim 15 wherein the predetermined rate corresponds to a minimum wheel acceleration representing contact with the ground.
- [c27] A method of controlling an automotive vehicle comprising:

initiating a build cycle;  
after the build cycle, initiating a release cycle; and  
determining one of an absolutely grounded, possibly grounded condition, an absolutely lifted or possibly lifted condition during one of the build cycle or the release cycle.

[c28] A method of operating an automotive vehicle having an antilock brake system comprising:

initiating an antilock brake monitor mode when the roll control system suspects lift and the driver is braking above a small minimum pressure level; and  
determining wheel lift in response to the level of wheel deceleration generated while the pressure is being released in the antilock brake monitor mode.

[c29] A method as recited in claim 28 wherein determining wheel lift comprises determining a absolutely lifted, possibly grounded condition or absolutely grounded in response to the antilock brake monitor mode.

[c30] A method of controlling an automotive vehicle comprising:

initiating an antilock brake monitor mode having a release cycle;  
determining a change in wheel speed; and  
determining a wheel lift or wheel grounded condition in

response to the change in wheel speed.

- [c31] A method as recited in claim 30 wherein determining a wheel lift or wheel grounded condition in response to the change in wheel speed comprises determining a wheel lift or wheel grounded condition in response to the change in wheel speed and a reacceleration threshold.
- [c32] A method as recited in claim 30 wherein determining wheel lift comprises determining a absolutely lifted, possibly grounded condition or absolutely grounded in response to the antilock brake monitor mode.
- [c33] A method as recited in claim 30 further comprising determining a wheel slip; and  
determining a wheel lift condition in response to wheel slip and wheel speed.